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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,119	09/10/2003	Mitsuo Kawasaki	9281-4620	3593

7590 08/08/2006

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EXAMINER
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BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/659,119

Applicant(s)

KAWASAKI ET AL.

Examiner

Kevin M. Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,12-16 and 19-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,12-16 and 19-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/20/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Amendments to claims 1, 6, 8, 9, 15 and 19, cancellation of claims 11, 17 and 18, and addition of new claim 25, filed on May 8, 2006, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Examiner's Comments***

3. The Examiner notes that claims 6 and 9 have the wrong designator. They are marked as "original" and should be "currently amended". The Examiner has made an Examiner's amendment to the claim designators for these claims to change them to "Currently Amended".
4. Applicants' petition to expunge has been approved.
5. Regarding the language "substantially sulfur-free" in claim 16, the Examiner has withdrawn the 112 2<sup>nd</sup> Paragraph rejection but has limited the scope of the term to that argued by applicants. Namely that "substantially sulfur-free" means "some infinitesimal, nonzero amount" (*page 5 of response*).

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 3 – 5, 7, 8, 12 – 16 and 19 – 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "fine" in claims 1, 3 – 5, 7, 8, 12 – 16 and 19 - 25 is a relative term which renders the claim indefinite. The term "fine" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purposes of evaluating the prior art, the Examiner has interpreted fine as nano-scale (i.e. 100 nm or less).

***Claim Rejections - 35 USC § 102***

8. Claims 1, 6, 21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiramoto et al. (U.S. Patent No. 5,849,400) for the reasons of record as set forth in Paragraph No. 8 of the Office Action mailed on February 9, 2006.

Regarding the amended language "wherein a stack of fine crystals constitute the columnar crystals", Hiramoto et al. disclose the claimed limitation as shown in Figure I below (where the bold lines denote a "columnar crystal" and each grain is a "fine crystal").

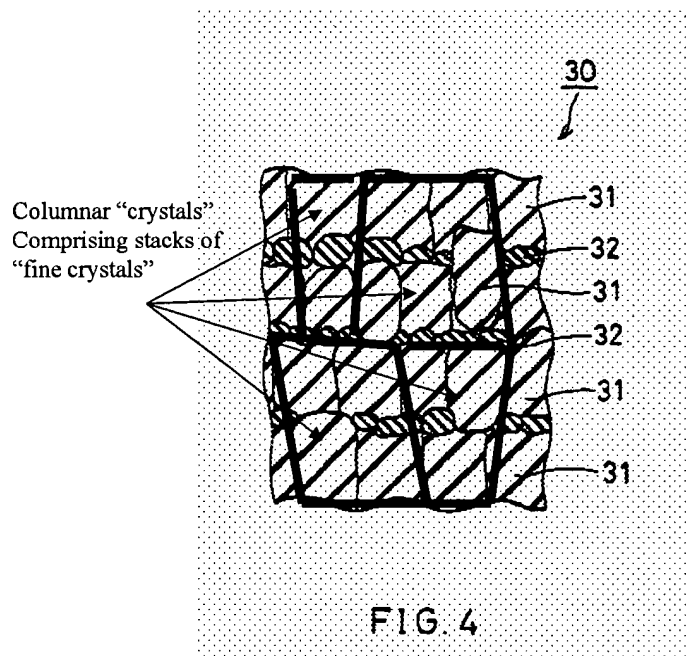


Figure I: Reproduction of Figure 4 of Hiramoto et al. showing "columnar crystals comprising stacks of fine crystals"

Regarding claim 25, Hiramoto et al. disclose overall film thickness values meeting applicants' claimed range limitations (*col. 10, line 59 bridging col. 11, line 15*).

9. Claims 1, 6 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Funayama et al. (U.S. Patent App. No. 2003/0197982 A1) for the reasons of record as set forth in Paragraph No. 9 of the Office Action mailed on February 9, 2006.

Regarding the amended language "wherein a stack of fine crystals constitute the columnar crystals", Funayama et al. disclose the claimed limitations (*Paragraphs 0078 – 0080 and 0150; and Figures 16 and 17, wherein the Examiner notes the columnar magnetic film is taught to be 300 nm thick, but the crystal grains are taught to be*

*“between approximately a few nanometers to several tens of nanometers”, hence clearly teaching that the 300 nm thick film comprises a plurality of stacked crystals).*

Regarding claim 25, Funayama et al. disclose overall film thickness values meeting applicants' claimed range limitations (*Paragraph 0080 and examples*).

***Claim Rejections - 35 USC § 103***

10. Claims 3 – 5 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramoto et al. as applied above, and further in view of Sasaki et al. (U.S. Patent App. No. 2003/0206369 A1) for the reasons of record as set forth in Paragraph No. 10 of the Office Action mailed on February 9, 2006.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramoto et al. in view of Sasaki et al. as applied above, and further in view of Osaka et al. (U.S. Patent No. 6,063,512) for the reasons of record as set forth in Paragraph No. 11 of the Office Action mailed on February 9, 2006.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramoto et al. as applied above, and further in view of Sato et al. (U.S. Patent App. No. 2003/0151851 A1) for the reasons of record as set forth in Paragraph No. 12 of the Office Action mailed on February 9, 2006.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramoto et al. as applied above, and further in view of Komuro et al. (U.S. Patent No. 6,034,847) for the reasons of record as set forth in Paragraph No. 13 of the Office Action mailed on February 9, 2006.

14. Claims 8, 9, 12 – 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (U.S. Patent No. 6,132,892) in view of Hitachi, LTD (JP 62-226413 A), Hiramoto et al. ('400) and Sato et al. ('851 A1) for the reasons of record as set forth in Paragraph No. 14 of the Office Action mailed on February 9, 2006.

15. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. in view of Hitachi, LYD, Hiramoto et al. and Sato et al. as applied above, and further in view of Moran (U.S. Patent No. 6,574,854 B1) for the reasons of record as set forth in Paragraph No. 15 of the Office Action mailed on February 9, 2006.

16. Claims 3 – 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funayama et al. as applied above, and further in view of Sasaki et al. ('369 A1) for the reasons of record as set forth in Paragraph No. 16 of the Office Action mailed on February 9, 2006.

17. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funayama et al. in view of Sasaki et al. as applied above, and further in view of Hiramoto et al. ('400) and Okada et al. ('503 A1) for the reasons of record as set forth in Paragraph No. 17 of the Office Action mailed on February 9, 2006.

18. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funayama et al. in view of Sasaki et al. as applied above, and further in view of Osaka et al. ('512) for the reasons of record as set forth in Paragraph No. 18 of the Office Action mailed on February 9, 2006.

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funayama et al. as applied above, and further in view of Sato et al. ('851 A1) for the reasons of record as set forth in Paragraph No. 19 of the Office Action mailed on February 9, 2006.

20. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funayama et al. as applied above, and further in view of Komuro et al. ('847) for the reasons of record as set forth in Paragraph No. 20 of the Office Action mailed on February 9, 2006.



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21. Claims 8, 9, 12 – 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. ('892) in view of Hitachi, LTD (JP '413 A), Funayama et al. ('982 A1) and Sato et al. ('851 A1) for the reasons of record as set forth in Paragraph No. 21 of the Office Action mailed on February 9, 2006.

22. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. in view of Hitachi, LYD, Funayama et al. and Sato et al. as applied above, and further in view of Moran ('854 B1) for the reasons of record as set forth in Paragraph No. 22 of the Office Action mailed on February 9, 2006.

### ***Response to Arguments***

**23. The rejection of claims 1, 3 – 9, 12 – 16 and 19 - 25 under 35 U.S.C § 102(b) and/or 103(a) – Hiramoto et al., alone or in view of various references**

**The rejection of claims 1, 3 – 9, 12 – 16 and 19 - 25 under 35 U.S.C § 102(e) and/or 103(a) – Funayama et al., alone or in view of various references**

Applicant(s) arguments have been considered but are moot in view of the new ground(s) of rejection. In so far as they apply to the present rejection of record, applicant(s) argue that "[n]one of the references cited by the Examiner discloses a Co-Fe magnetic film comprising columnar crystals which have as constituents a *stack of fine crystals*" (*emphasis in original – page 6 of response*). The Examiner respectfully disagrees.

Regarding Hiramoto et al., see the present rejection of record, where the Examiner notes that it is simply a matter of nomenclature to call a group of small columnar crystals a larger columnar crystal (*as shown in Figure 1 above*). The large crystals are still columnar in shape and the small crystals meet applicants' claimed crystal size limitations (*e.g. "fine", as interpreted by the Examiner*).

Regarding Funayama et al., the Examiner notes that Funayama et al. implicitly teach that the columnar grains are formed from a plurality of stacked crystals since the columnar grains extend through the entire thickness of the film (*Figures 16 and 17*), yet the disclosed crystal sizes are a mere fraction of the thickness sizes recited for the films.

### ***Conclusion***

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

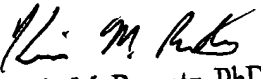
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25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
August 1, 2006

  
Kevin M. Bernatz, PhD  
Primary Examiner